

Solar and Heliospheric Management Operations Working Group

Preliminary Findings

February 25, 2012

1. Two-Step Proposal Review Process

Two key aspects of the Heliophysics proposal review process are that: (1) it is very fair and highly regarded, and (2) it takes a large amount of community time and resources, including a major commitment on the part of NASA HQ personnel. There is a great desire to reduce the “costs” while at the same time maintaining the all-important fairness. A two-step review process has therefore been proposed. The SH-MOWG feels that this new approach has considerable potential; however, we believe it is prudent to move cautiously. There are a number of issues that should be carefully addressed before any such plan is implemented. Several of these are listed below. In addition, two significant changes have already been made for the current proposal cycle: the requirement of a first step extended abstract with unchangeable title, PI, and team members and a common due date for the Supporting Research (SR) and Guest Investigator (GI) programs. These changes should both speed up the review process---since panelists can be contacted well in advance---and reduce the number of duplicate proposals. The benefits of these changes should be evaluated before it is decided whether additional changes are necessary. Above all, both the actual and perceived fairness of the review process must be maintained.

The following are some of the questions that should be carefully investigated before a full-fledged two-step process is adopted. How high a rejection rate is necessary in step 1 in order to significantly reduce the total time invested in the process (writing and reviewing the proposals, managing the program)? Is a numerical scoring system adequate for step 1, or is it necessary to convene a panel in order to assure that all deserving proposals advance to step 2? Is a 2-3 page mini-proposal enough for highly innovative or complex ideas to be presented and thereby be assured a fair treatment? Are junior scientists at a disadvantage because they have not established a reputation? Without a written review, how do unsuccessful proposers in step 1 (a majority) get valuable feedback on how to improve? Will the number of mini-proposals submitted to step 1 greatly exceed the number of full proposals that are currently submitted, thereby nullifying the time savings? Is there a danger that ideas presented in unsuccessful step 1 proposals will be pursued by reviewers who may be step 1 proposers themselves and who may ultimately be successful in step 2 (and therefore have funding to begin the work immediately, whereas the originator of the idea would need to wait another year for possible funding)?

2. Declining Research and Analysis (R&A) Funding

The research and analysis (R&A) programs are a relatively inexpensive yet vitally important component of the Heliophysics portfolio. A majority of the scientific payoff from the enormous investment in missions comes from the research supported by these programs. It is especially discouraging, therefore, that the combined funding for the R&A programs has experienced a steady decline in recent years and is slated to decline even more precipitously in the out-years of the FY13 Presidential Budget Request (PBR). This situation has produced a dramatic decrease in the success rates for proposals. For example, only one in ten Guest Investigator proposals is expected to be funded this year. Scientific productivity is suffering as a result, since more and more time must be spent writing and reviewing proposals instead of doing the actual research.

We are concerned that the magnitude of the problem may not be fully appreciated by our sponsors (Congress, OMB, OSTP). The grants programs, with the exception of Living With a Star TR&T, are embedded in the Heliophysics Research budget line. It is unknown to those who are not budget experts that R&A comprises less than one-third of the funding in this line. Since many people equate Heliospheric Research with grants, they can mistakenly believe that the grants programs are healthy even when they are not.

The SH-MOWG finds that NASA should make every effort to increase the funding for R&A. These programs currently account for about 10% of the Heliophysics budget. We suggest that 15-20% would be more appropriate and would enhance the scientific return on the taxpayers' investment. We further find that NASA should endeavor to make the reality of the current situation more transparent to all those concerned.

Annual Research and Analysis Funding (\$M not inflation corrected)

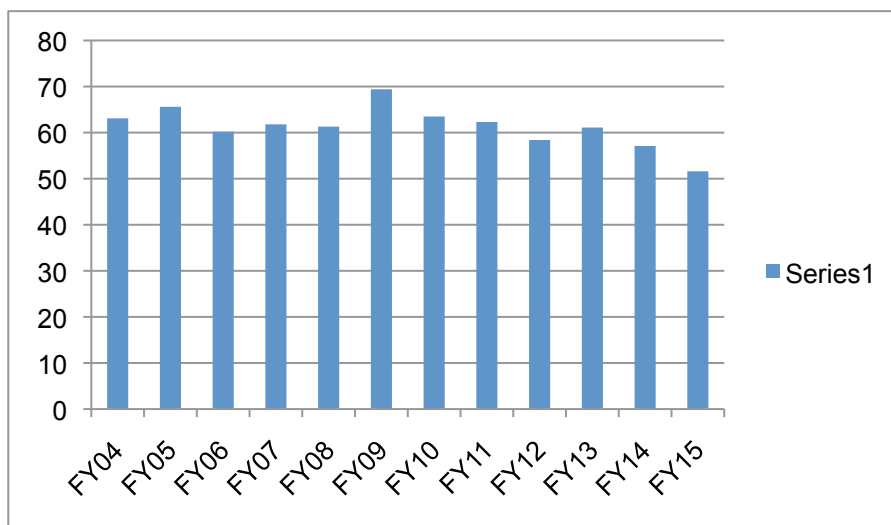


Chart explanation: FY11-FY15 are the sum of Heliophysics Research and Analysis (PBR pg. HELIO-2), SEC Guest Investigator Program (pg. HELIO-9), and Science (pg. HELIO-35). FY04-FY10 are courtesy of Jeff Newmark.

3. Support of Ground-Based Observatories

Ground-based observatories provide important scientific support and calibration data for various NASA satellite missions. To remain operational, these facilities require ongoing funding. In many cases the funding has been provided by NSF, but some of the support for some of these observatories is currently being provided through successful proposals to Supporting Research and Technology opportunities in NASA's Heliophysics division. The latter funding method is subject to a highly variable outcome that is not consistent with the need to evaluate the long-term value of these facilities to the Heliophysics research program. The Senior Review of ongoing NASA missions is a more suitable format, since it makes a determination of the long-range contribution of the mission to the program and whether that mission should continue to be funded or be shut down. This is a more appropriate process for evaluating the ground-based facilities.

The SH-MOWG therefore finds that NASA should work with NSF to identify a Senior Review-like process for the review of the ground-based facilities. The current Senior Review of the extended NASA missions is a possibility, but if they are to be lumped in with those missions several implementation issues need to be addressed: 1) Which observatories should be invited or will it be a proposal opportunity that is open to all facilities? If so, this would differ significantly with the current Senior Review process. ; 2) Would the intention be to provide all of the on-going support that is needed for the facilities or just a portion? ; 3) How would NSF and NASA work together in the review process? ; and 4) How would the existing meager funds currently being competed for by the NASA space missions in their extended phase be protected?

4. Infrastructure Support

The calibration of flight instruments and the laboratory measurement of, e.g., atomic parameters are vital parts of NASA infrastructure. These activities are sometimes funded from mission budgets and sometimes funded through Supporting Research (SR) grants. In the past, calibration facilities could operate continuously from a steady stream of customers. The situation has changed, however, and several facilities have either closed down or are at risk of doing so. The SH-MOWG is concerned that this contraction/consolidation may result in key functions no longer being available within the U.S. We find that the Heliophysics Division should explore the possibility of providing low level base funding to keep the most critical facilities in operation. It is appropriate that these funds come from the Living With a Star and Solar-Terrestrial Probes mission lines and that it be done in cooperation with other NASA divisions and other agencies. Furthermore, because proposals relating to infrastructure (calibration, laboratory measurements, data processing such as stray light correction, etc.) are at a disadvantage when competing with pure science proposals in the SR

program, the Heliophysics Division should consider other ways of competitively funding this work.